$or\ V_A > 0 \Rightarrow \omega\theta_A + \varphi_A = 0 \Rightarrow \varphi_A = -\omega\theta_A$

$AN \quad \varphi_A = -100\pi \times 5 \times 5 \times 10^{-3} = -2,25\pi$

$$\boxed{\varphi_A = -\frac{\pi}{2}}$$

$d'où\ y_A(t) = 4.10^{-3} \sin(100\pi t - \frac{\pi}{2})$

$y_s(t) = y_A(t+\theta)$

$= 4.10^{-3} \sin(\omega(t+\theta) + \varphi_A)$

$= 4.10^{-3} \sin[100\pi t + \omega\theta + \varphi_A]$

$y_s(t) = 4.10^{-3} \sin(100\pi t)$

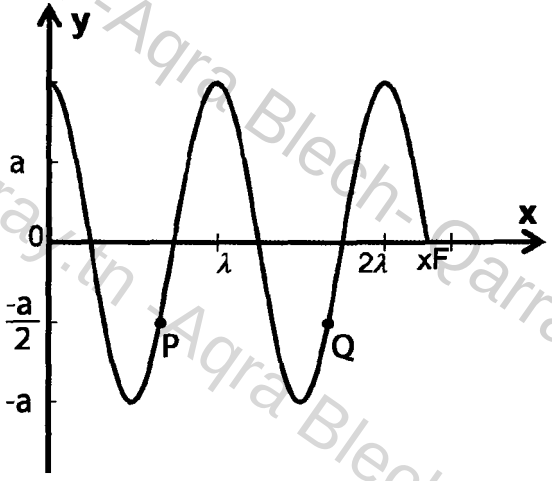
$$\varphi_s - \varphi_A = \frac{\pi}{2}$$

Remarque :

⇒ S vibre en quadrature avance de phase par rapport à A .

4)a- $x_F = V.t_2 = 10 \times 4,5.10^{-2} = 4,5.10^{-1} m$

$\frac{x_F}{\lambda} = \frac{4,5.10^{-2}}{20.10^{-2}} = 2,25 \Rightarrow x_F = 2,25\lambda$



b- voir figure :

5) $y_S(t) = a \sin(\omega t + \varphi_S)$

$y_M(t) = y_s(t-\theta)$

$= a \sin(\omega t - \omega\theta + \varphi_s)$

Qarray.tn - Aqra Blech - Qarray.tn